September 19, 2017

Document Control Office (7407M)
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0001

Re: Docket ID No. EPA-HQ-OPPT-2016-0736; Asbestos – Toxic Substances Control Act (TSCA) Review and Scoping

To Whom It May Concern:

The Chlorine Chemistry Division (CCD) of the American Chemistry Council[1] submits the following supplemental comments on the scope of the U.S. Environmental Protection Agency's (EPA) risk evaluation of asbestos pursuant to the Toxic Substances Control Act (TSCA), as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act (LCSA). CCD represents manufacturers of chlorine and caustic soda who depend on diaphragms made with chrysotile asbestos for a significant percentage of their production. The chlor-alkali industry directly produces $129 billion in economic output in the United States every year. CCD has provided a considerable amount of information to Agency staff to assist in their review of diaphragms since asbestos was identified as a priority chemical under TSCA last December.

EPA's June 2017 scoping document identifies the use of chrysotile asbestos in the fabrication of diaphragms for chlor-alkali manufacturing as a condition of use to be evaluated under the LCSA.[2] The document further identifies "workers and occupational non-users" as potentially exposed populations within the chlor-alkali manufacturing process. As described in detail in CCD's March 15, 2017 comments to the Agency,[3] and as summarized below, the industry employs multiple engineering controls and work practices to ensure that workers are not exposed to dry (friable) asbestos. These protective measures ensure compliance with the requirements of federal environmental and occupational regulations and effectively manage the risks of asbestos use. As evidenced by the information we have provided, the industry's use of closed systems in restricted-access areas when processing the chrysotile asbestos, combined with the appropriate use of personal protective equipment (PPE) and engineering controls in compliance with existing federal

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1 The Chlorine Chemistry Division represents major producers and users of chlorine in North America. The Division works to promote and protect the sustainability of chlorine chemistry processes, products and applications in accordance with the principles of Responsible Care®.

2 US EPA. Scope of the risk evaluation for asbestos. EPA 740-R1-7008 (June 2017).

3 Docket ID EPA-HQ-OPPT-2016-0736-0052.

OSHA, CAA and DOT regulations, ensures that exposure among its workers and the surrounding environment are eliminated and can be considered *de minimis* as outlined in the Agency's recent risk evaluation rule.[4]

EPA conducted a TSCA review in 1989 that determined the chlor-alkali industry's use of asbestos diaphragms did not present an unreasonable risk.[5] Combining its previous conclusion with the environmental and health regulations in place for asbestos and the chlor-alkali industry's history of safe use will allow EPA to conclude that the continued use of asbestos diaphragms does not present an unreasonable risk of injury to health or the environment.

Assembly and Use of Asbestos Diaphragms

The use of chrysotile asbestos is key to the manufacture of chlorine and caustic soda in the United States. The chlor-alkali industry recognizes the inherent properties of this mineral, and from its entry into a port in the United States to its ultimate disposal, the management of chrysotile asbestos in the chlor-alkali industry is highly regulated and managed in a closely controlled process.

The diaphragm cell chlor-alkali process involves separation of the sodium and chlorine molecules of salt via electricity to produce sodium hydroxide (caustic soda), hydrogen, and chlorine. Specifically, brine (an aqueous solution of salt) is passed through an electric current and sodium hydroxide, hydrogen and chlorine are formed. Key to the diaphragm cell process is the electrolytic cell. It is in this cell that the electrolytic reaction occurs. The cell contains two compartments separated by a permeable diaphragm, which is made mostly of chrysotile asbestos. The diaphragm prevents the reaction of the caustic soda with the chlorine and allows for the separation of both materials for further processing. The use of chrysotile asbestos in the chlor-alkali industry is solely related to its use as a diaphragm in an electrolytic cell and it has been used safely for many decades.

Chrysotile asbestos arrives in the United States in sealed containers, is stored in controlled areas, processed with dedicated equipment, and disposed of in accordance with federal, state and local requirements. While a variety of regulations generally cover hazard communication, release reporting, waste management, etc. of chrysotile asbestos, the Federal government has issued three specific rules that govern the safety of workers and the protection of the environment. These are the Occupational Safety and Health Administration's (OSHA) Standard for Toxic and Hazardous Substances, Asbestos (29 CFR § 1910.1001);the Environmental Protection Agency's (EPA) National Emission Standard for Hazardous Air Pollutants (NESHAP), National Emission Standard for Asbestos (40 CFR § 61.140); and Department of Transportation (DOT) regulations for transportation of Hazardous Materials (including 49 CFR § 173.216 and 172.101) . Additionally, the industry follows the procedures set forth by Chlorine Institute Pamphlet 137, "Guidelines: Asbestos Handling for the Chlor-Alkali Industry."

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4 82 *Fed Reg* 33726 (July 20, 2017).

5 54 *Fed Reg* 29460 (July 12, 1989).

Worker safety is paramount in the management of chrysotile asbestos and nowhere in the chlor-alkali process does a person come into direct contact with dry material while not wearing appropriate PPE. We estimate that about 100 workers industry-wide across the United States process chrysotile asbestos on a day-to-day basis. Specific training, PPE use and work practices govern how they conduct their work activities. Even though they wear PPE, the workplace is monitored for chrysotile asbestos and employees are afforded specific medical monitoring and surveillance. These activities, coupled with equipment maintenance and management of the workplace environment, form an overall comprehensive chrysotile asbestos management program that is specifically aimed at eliminating any potential exposure to chrysotile asbestos by personnel and the environment.

Diaphragms may last a year or more before they need to be removed from service. While most of the electrolytic cell parts, including the screen on which the diaphragm is situated, can be reused, the chrysotile asbestos diaphragm itself is not. In order to reuse the parts of the cell it must be disassembled and the chrysotile asbestos diaphragm must be removed. The diaphragm, which is still hard and fused to the screen, is removed with a hydroblasting apparatus. The cleaning bay is an enclosed area and constructed to minimize potential emissions and allow for effective cleanup. Fluid from the hydroblasting operation is contained. After each use of the cleaning bay, the work surfaces are flushed and cleaned with water. A filtration system is used to remove chrysotile asbestos from the hydroblasting water prior to discharging the water to the facility's wastewater collection and treatment system. The filtered waste material is contained as required for asbestos containing material prior to disposal.

Chrysotile asbestos wastes (chrysotile asbestos separated from the hydroblasting water, containers and bags, chrysotile asbestos contaminated clothing, etc.) are placed in a labeled, plastic lined impervious container as required by NESHAP and DOT regulations. An approved landfill is used for disposal of chrysotile asbestos wastes in compliance with Federal NESHAP requirements (40 CFR § 61.154) and applicable State regulations for chrysotile asbestos disposal.

Chlor-Alkali Process Controls and Protections

The safety and health of workers is the top priority. In order to safely handle and work with chrysotile asbestos, engineering controls, PPE, training and medical surveillance are used to meet strict OSHA and EPA requirements.

- Engineering Controls - According to OSHA, engineering controls implement physical change to the workplace, which eliminates/reduces the hazard of the job/task. When the use of a substance cannot be eliminated or substituted, the use of engineering controls is considered to be the most effective means of controlling workplace hazards. For this reason, the chlor-alkali industry has adopted three significant systems of engineering controls: wet methods, ventilation, and glove boxes (or a similar enclosed system).

Activities that have the potential to generate friable/dry chrysotile asbestos (e.g. diaphragm preparation and cell renewal) are performed using wet methods. When chrysotile asbestos is no longer in the dry form (i.e. wetted), it is no longer likely to become airborne.

Exhaust ventilation or dust collection is used to maintain exposures at or below permissible levels. A typical dry room and the glove box are both under vacuum and routed to a baghouse containing a HEPA filter. The filters in the baghouse meet or exceed OSHA and NESHAP standards. When vented after the filter, visible emissions monitoring inspections are performed as required by EPA's Asbestos NESHAP.

A glove box is a sealed compartment similar to those which are used in laboratories and allows personnel to use secure gloves to open the bags without actually touching or being in direct contact with the material. The glove box operates under a vacuum to ensure all fibers are contained and vented to a high efficiency filter.

- Employee Training - Workers who may be exposed to chrysotile asbestos receive training on appropriate procedures for moving and handling chrysotile asbestos, required PPE,[6] decontamination procedures, and other applicable topics. Training is given initially prior to or at the time of initial assignment to work in designated areas and periodically thereafter, but at least once every three years.

- Personnel Monitoring - Personnel monitoring (eight-hour TWA shift monitoring and specific task monitoring) is conducted to provide quantitative exposure data, verify functionality of engineering controls, determine medical surveillance, define designated areas, and demonstrate compliance with all Federal and State laws and regulations. The monitoring frequency is based on past results, job observations, and planned inspections, and meets all OSHA requirements. A summary of monitoring data was included in ACC's submission to EPA in May and is enclosed.

- Medical Surveillance - The OSHA Asbestos Standard requires that the employer establish a medical surveillance program for those employees who are or may be exposed to airborne concentrations of fibers of asbestos at or above the time weighted average (TWA) and/or excursion limit. Therefore, all employees who have the potential to work in a designated area are offered medical examinations at the time of placement into the designated area, annually and upon termination of employment.

  The medical examination will include height, weight, blood pressure, heart rate, and a physician's written opinion. A health history is completed with each exam with a special emphasis on respiratory, cardiac, and digestive systems as required by the OSHA asbestos

[6] The engineering controls used by the chlor-alkali industry are sufficient to control chrysotile asbestos emissions. However, employees handling chrysotile asbestos are required to wear PPE as an additional precaution to ensure no exposure. PPE includes respiratory protection, disposable gloves and suits, and appropriate footwear (e.g. rubber boots).

standard. A respiratory disease questionnaire is also completed for each exam. Laboratory testing, including a chest roentgenogram (x-ray) and pulmonary function test (PFT), also known as spirometry or lung function test, is required as part of the medical exam.

- Personal Protective Equipment (PPE) - The engineering controls used by the chlor-alkali industry are sufficient to control chrysotile asbestos emissions. However, employees handling chrysotile asbestos are required to wear PPE as an additional precaution to ensure no exposure. PPE includes respiratory protection, disposable gloves and suits, and appropriate footwear (e.g. rubber boots). Each facility requires the use of protective clothing and decontamination procedures to prevent skin and hair contamination and to prevent the transfer of asbestos fibers from designated areas to other areas of the facility. Based on the results of PPE Hazard Assessments, each plant determines required PPE by task based on OSHA requirements and corporate procedures.

Transportation and Disposal Requirements

In addition to EPA and OSHA controls, additional transportation and state requirements apply to asbestos. The federal Department of Transportation (DOT) imposes specific shipping, packaging and labeling requirements on asbestos as a hazardous material: 49 CFR Parts 171 (general shipping requirements); 172 (marking and labeling requirements); and 173 (asbestos packaging requirements). For asbestos transportation, 49 CFR § 173.216 requires leak-tight, rigid packaging and/or non-rigid packaging in closed freight containers. The shipping containers are marked per DOT requirements and are transported to the facility where the pallets and bags are removed as described in ACC's March 15 submission to EPA.

EPA's NESHAP and OSHA regulations impose specific labeling requirements on asbestos containing waste material. (40 CFR § 61.150(a)(1)(iv), citing 29 CFR § 1910.1001(j)(4) and 40 CFR § 61.150(d)). DOT regulations referenced above also apply to asbestos containing materials as hazardous material when in transport to disposal. States may impose additional regulations for disposal of asbestos-containing material. Federal regulations impose coverage, dust suppression, and recordkeeping requirements for a landfill to be approved for disposal of asbestos-containing waste in compliance with federal NESHAP regulations. The federal NESHAP also imposes additional controls on inactive landfills that accept asbestos-containing materials (40 CFR § 61.151).

Chlor-alkali manufacturers have achieved a long history of safe use of chrysotile asbestos in the production of chlorine and caustic soda. These manufacturing operations are regulated by EPA, OSHA, DOT, and state requirements that effectively eliminate the potential for exposure among the workers, the community, and the environment.

Please do not hesitate to contact me if you require additional information on this important manufacturing process.

Sincerely,

Judith Nordgren
Managing Director
Chlorine Chemistry Division

Enclosure: CCD May 12 submission to EPA